Appendix N Technical Benchmarking Modeling – All Other Scenarios

LEHDER

Technology Benchmarking Appendix

Assessment of All Technically Feasible Options and Combinations

Explanation of Reduction Efficiencies for Technically Feasible Options

Technology	Estimated Reduction Efficiency	Rationale
Dust collector/baghouse (DC)	95%	Reduction efficiency is based on Owens Corning engineering estimates taking into account past experience with similar devices at fiberglass insulation facilities, low concentration profile of the exhaust stream and predicted particle size.
Dry Electrostatic Precipitator (DEP)	95%	
Wet Electrostatic Precipitator (WEP)	95%	
Spray Chamber Scrubber	20%	Reduction efficiency is based on Owens Corning engineering estimates taking into account past experience with similar devices at fiberglass insulation facilities, low concentration profile of the exhaust stream and predicted particle size.
Cyclone Spray Chamber	20%	
Low or High Pressure Venturi Scrubber	20%	
Substituting with Low Sublimation Chromium refractory	10%	Reduction efficiency is a rough estimate based on limited information available from source testing at the Guelph facility. This technology has been considered not technical feasible but included for the purposes of completeness.
Conversion to air/gas combustion	86%	Reduction efficiency is based on a single source testing data point at another similar facility.
Use of more accurate combustion control skids with constructing front end superstructures (two technologies must be combined to be effective)	50%	Reduction efficiency is based on assessment of source testing programs at various production rates and process parameters.
Re-engineering the exhaust points to overcome site specific dispersion challenges	65-90%	Reduction efficiency is based on the assessment of annual average dispersion factors for technically feasible changes to stack configurations for sources included in the reconfiguration.

The following sections of this appendix are organized by each Pollution Control Combination in the order of ranking. Each appendix contains a summary of the emission rate calculations for each source as well as the modeling inputs and results.

The Default Pollution Control Combination (combination ID G_R1) is presented in Appendix L and the Preferred Pollution Control Combination (combination ID E_R9) is presented in Appendix M.

Assessment Results of Technically Feasible Pollution Control Strategies

Combination ID	Polution Control Strategy Description	Ranking	Overall Percent Reduction
G_R1 (default)	Electrostatic Precipitator (DEP/WEP) or Dust Collector on furnace and forehearth stacks combined with the use of Low Sublimation Chromium (LSC) refractory and conversion of the forehearths to air/gas combustion	1	95.23%
M_R1	Electrostatic Precipitator (DEP/WEP) or Dust Collector on furnace and forehearth stacks combined with conversion of the forehearths to air/gas combustion	2	95.16%
H_R1	Electrostatic Precipitator (DEP/WEP) or Dust Collector on furnace and forehearth stacks combined with the use of LSC refractory and the installation of more accurate combustion controls in combination with front end superstructures to prevent air ingress	3	94%
N_R1	Electrostatic Precipitator (DEP/WEP) or Dust Collector on furnace and forehearth stacks combined with incorporating more accurate combustion control skids and construction of frontend superstructures	4	93%
V_R1	Electrostatic Precipitator (DEP/WEP) or Dust Collector on furnace and forehearth stacks	5	91%
E_R9 (preferred)	Incorporating more accurate combustion control skids and construction of front end superstructures and re-engineering exhaust stacks impacted by reconfiguration	6	88.5%
I_R3	Scrubber on forehearth stack, use of Low Sublimation Chromium (LSC) refractory and forehearth conversion to air/gas combustion	7	77%
O_R2	Scrubber on forehearth stack and forehearth conversion to air/gas combustion	8	75%
S_R1	Forehearth conversion to air/gas combustion	9	73%
J_R2	Scrubber on forehearth stack, use of Low Sublimation Chromium (LSC) refractory and incorporating more accurate combustion control skids and construction of front end superstructures	10	50%
P_R2	Scrubber on forehearth stack and incorporating more accurate combustion control skids and construction of front end superstructures	11	48%
T_R1	Incorporating more accurate combustion control skids and construction of front end superstructures	12	39%
W_R2	Scrubber on forehearth stack	13	27%